

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Inventor: Atsushi MATSUMOTO et al.

Art Unit 4145

Appln. No.: 10/568,448

Exr. T. V. Nguyen

Filed: February 15, 2006

Conf. No. 3354

For: APPARATUS AND METHOD FOR RADIO TRANSMISSION

RESPONSE UNDER 37 CFR §1.111

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated October 1, 2008, the Applicants hereby petition for a one-month extension of time and respectfully request reconsideration and allowance of this application in light of the following remarks.

Claims 1-6 stand rejected, under 35 USC §103(a), as being unpatentable over Quigley et al. (US 2001/0055319) in view of Applicants' Description of the Related Art and Sommer et al. (US 2004/0228391). The Applicants respectfully traverse these rejections based on the points set forth below.

Claim 1 defines a radio transmission apparatus having a mapping unit that maps spread first chips of data modulated with a lower M-ary modulation scheme on subcarriers in the frequency domain and maps spread second chips of data modulated with a higher M-ary modulation scheme on subcarriers in the time domain. The claimed subject matter provides an advantage of enabling highly efficient communication (see specification page 3, lines 19-21).

(References herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

The Office Action acknowledges that Quigley does not disclose the Applicants' claimed subject matter of a mapping unit that maps lower M-ary modulated data that is spread into first chips on subcarriers mapped in the frequency domain and maps higher M-ary modulated data that is spread into second chips on subcarriers in the time domain (see Office Action page 3, second paragraph). To overcome this deficiency, the Office Action proposes that the Applicants' Description of the Related Art discloses, in lines 5-8 of paragraph [0002], a mapping unit that maps first chips onto subcarriers in a frequency domain and maps second chips onto subcarriers in a time domain (see page 3, last paragraph).

However, it is noted that the Applicants' Description of the Related Art discloses two schemes for combining CDMA and OFDM (see specification page 1, lines 13-14). One scheme maps chips of spread data on subcarriers in the frequency domain, and the other scheme maps chips of spread data on subcarriers in the time domain (see page 1, lines 14-17).

The Applicants' Description of the Related Art does not disclose a mapping unit that maps spread chips onto subcarriers in both the time and frequency domains, as recited in present claim 1. Moreover, the Applicants' Description of the Related Art does not disclose associating the M-ary scale of modulation schemes with different domains such that data modulated by a lower M-ary modulation scheme is mapped onto subcarriers in the frequency domain and data modulated by a higher M-ary modulation scheme is mapped onto subcarriers in the time domain, as recited in claim 1. Sommer is not cited in the Office Action for supplementing the teachings of Quigley and the Applicants' Description of the Related Art in this respect.

Accordingly, the Applicants submit that the teachings of Quigley, the Applicants' Description of the Related Art, and Sommer, considered individually or in combination, do not render obvious the subject matter defined by Applicants' claim 1. Independent claim 6 similarly recites the above-mentioned subject matter distinguishing apparatus claim 1 from the applied references, but with respect to a method. Therefore, allowance of claims 1 and 6 and all claims dependent therefrom is warranted.

In view of the above, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

/James Edward Ledbetter/

Date: February 2, 2009
JEL/DWW/att

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